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Building a Rocket Stove for the Cabin

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Introduction: Building a Rocket Stove for the Cabin

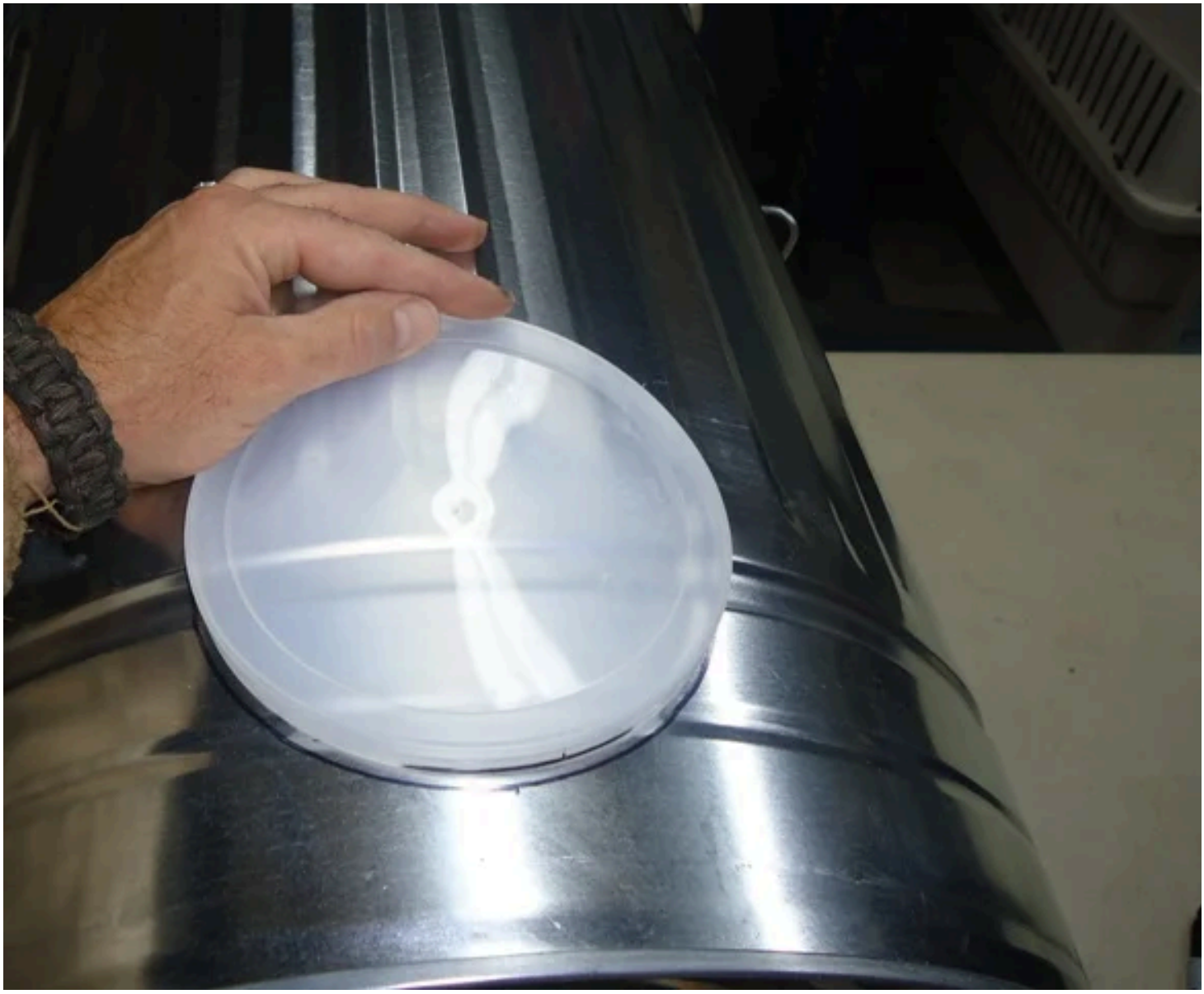
FPS combines my passion for hunting and wildlife conservation with the overall need for self sufficiency.

Step 1: Here Are the Basic Materials for Our Rocket Stove.

Step 2: To Start, We Must Locate and Mark the Bottom of the Hole in the Trash Can for the 6" Stove Pipe.

Step 3: The Lid From a #10 Tin Can Makes the Perfect Template to Trace the Hole.

Step 4: The Plastic Lid Is Flexible Enough to Lay on the Curved Surface of the Trash Can. Using a Sharpie Trace the Outline.



Step 5: Now We're Ready to Cut the Hole.

Step 6: Using a Pair of Tin Snips, Cut a Rough Hole Making Sure to Stay at Least 1/2" Away From the Edge of the Black Line.

Step 7: The Edges Are Rough and Sharp.

Step 8: Using the Tin Snips Again, Proceed to Make Thin Cuts in the Metal. We Will Be Folding These Tabs Into the Can.

Step 9: Another View of the Relief Cuts.

Step 10: There Are Many Ways to Cut a Hole in Sheet Metal But If You Only Have Limited Tools This Method Is More Than Acceptable and the Hole Looks "finished".

Step 11: Insert the 6" Elbow Into the Hole. Place the Section of Stove Pipe Onto the Elbow and Mark It About 1" Below the Rim of the Trash Can.

Step 12: Mark a Dotted Line to Guide Your Cut.

Step 13: Secure a 2x4 Into Your Bench Vise and Insert the Stove Pipe Through It.

Step 14: Using a Cut-off Wheel, Start Connecting the Dots. Rotate the Pipe Around and Reclamp Until the Cut Is Complete.

Step 15: We Will Be Using Both Sections of Pipe. Hand File to Break the Sharp Edges.

Step 16: A Rubber Mallet May Be Needed to Persuade the Two Pieces to Come Together.

Step 17: Check for Fit and Proper Height.

Step 18: Self Tapping Screws Will Secure the Two Pieces Together.

Step 19: Attach the Short Section of Pipe to the Elbow.

Step 20: Starting the Double Wall Chimney... Place a Trim Ring on First.

Step 21: A Good View of the Trim Ring Inverted and Slid Into Position. My Dog Is Super Excited About This Project.

Step 22: The 8" Pipe Should Be Cut a Couple Inches Below the Rim of the 6" Pipe, This Will Leave Room to Install the Second Trim Ring.

Step 23: Checking Again for Fit. Notice the 1/2" Metal Plate Under the Elbow, This Keeps the Fire Chamber Off the Bottom of the Can.

Step 24: Four Pieces of Threaded Rod Will Secure the Top of the Chimney. Measure From the 6" Pipe to the Edges of the Can and Add 1".

Step 25: Measure, Mark and Drill the Can for Threaded Rod Installation.

Step 26: Now Mark the Hole Location in the 8" Stove Pipe.

Step 27: All 4 Rods Will Touch the 6" Chimney to Secure It. Adjust the Nuts and Tighten on the Inside and Outside of the Trash Can.

Step 28: Another View of Securing the Chimney, the Interior and Exterior Nuts Can Be Seen.

Step 29: A Piece of Sheet Metal Will Be Used for the Wood Fuel to Lay On. Measure the Widest Point of the Stove Pipe.

Notice the two screws inside that are used to hold the stove pipe to the elbow. The sheet metal can rest on those screws perfectly.

Step 30: Slide the Sheet Metal in As Far As It Will Go.

Step 31: This View Shows the Sheet Metal Slid Into Place. Once the Sticks Are Installed, the Fire Chamber Will Only Burn the Tips As Super Heated Air Flows in From Under the Wood and a Strong Draft Is Created in the Combustion Chamber.

Step 32: Pour the Vermiculite Into the Double Wall of the Chimney. the Mini Mouse Cup Is Optional.

Step 33: Once the Double Walled Chimney Is Full Put the Second Trim Ring on and Pour the Rest of the Vermiculite Around the Combustion Chamber.

Step 34: This Is an Old Grate I Had Laying Around and Will Be Perfect for the Rocket Stove Top.

Step 35: Ready for the First Test Burn. the Great Thing About a Rocket Stove Is That It Needs Very Little Fuel to Operate Efficiently.

Step 36: Push the Sticks All the Way Into the Combustion Chamber. Newspaper, Leaves or Dry Grass Can Be Used to Lite the Stove.

Step 37: At First There Will Be Smoke. Once the Stove Heats Up Not Only Will the Sticks Burn But So Will the Smoke. Smoke Is Nothing More Than Unused Energy.

The vermiculite is a great insulator and will help keep the fire so hot that even the smoke will be consumed and turned into heat.

Step 38: A View Inside the Combustion Chamber. the Stove Is Almost Up to Operating Temperature, Very Little Smoke Can Be Seen.

Step 39: Complete Combustion in Under 5 Minutes. No Visible Signs of Smoke and an Intense Fire Is Roaring in the Combustion Chamber.

The term "rocket stove" is used because the draft is so intense in the combustion chamber that the roaring fire sounds like a rocket taking off.

Time to build a couple quick accessories before we take the stove out for field trials.

Step 40: This Is an Old Ash Bucket Shovel That I Had in the Garage.

By cutting wings in the end of the shovel and bending it over I created a reverse scoop for pulling the ashes out of the combustion chamber.

Step 41: Two Pictures of the Scoop in Action.

Step 42: Next We Will Make an Adjustable Metal Skirt Which Will Aid in Heating the Water Kettle.

Cut the tops and bottoms out of three #10 cans and split down the middle.
These pieces will make an adjustable skirt that can wrap around just about any sized container.
The skirts force the hot air to stay close to the sides of the container and is another form of insulation.

Step 43: The Stove Is Not in Operation. These Pics Are to Show the Adjustable Skirt on the Water Kettle.

Step 44: Keep the Lid on the Trash Can When Not in Use and Everything Stays High and Dry.

Step 45: At the Cabin and Now Installing the Rocket Stove Pad, It's a Very Simple Sandstone Slab on Bricks.

Step 46: Rocket Stove Set-up and Ready. the Stove Is Now at Waist Level, Perfect for Cooking or Canning.

Step 47: Firing Up the Stove and Filling the Water Kettle.

Step 48: 1 1/2 Gallons of Water.... Full Boil in Under 40 Minutes.

Step 49: Two More Pics of the Water Kettle Boiling. Notice the Lack of Wood Smoke.

Step 50: Before Cooking on the Stove I Needed to Burn the Paint Off the Metal Grate.

Step 51: Burgers and Hotdogs on a Broiler Pan. This Is Needed to Keep the Grease From Dripping Into the Trash Can.

Shadow says, "Anything that hits the ground is mine."

Step 52: When the Burgers Were Almost Done I Placed Them on a Cast Iron Grate Over the Stove for Flavor.

Mmmmm.... charbroiled :)

Step 53: It Is Now the Following Morning and Time for Breakfast.... Bacon and Eggs.

Step 54: Breakfast Is Served..... Thank You.

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